

CLAIMS

1. A sleep apnea syndrome diagnosing device, comprising:
 - a snoring sound collector which collects snoring sound;
 - a snoring sound holder which holds the collected snoring sound;
 - a correlation coefficient calculator which divides a time axis of the snoring sound held in the snoring sound holder into plural cycles and which sequentially calculates a correlation coefficient between the snoring sound of one cycle and the snoring sound of a cycle next to the one cycle; and
 - an output section which outputs the correlation coefficient calculated by the correlation coefficient calculator.
2. The sleep apnea syndrome diagnosing device according to claim 1, wherein the correlation coefficient calculator comprises:
 - a reference data moving period setter which sets a reference data moving period having a first length longer than a length of the cycle on the time axis of the snoring sound;
 - a comparison data moving period setter which sets a comparison data moving period having a second length longer than the length of the cycle on the time axis of the snoring sound, the comparison data moving period being shifted from the reference data moving period by a first predetermined period;
 - a combination calculator which calculates correlation coefficients respectively on combinations of cycles set by shifting within the reference data moving period by a second predetermined period each time and cycles set by shifting within the comparison data moving period by a third predetermined period each time; and
 - a representative value extractor which extracts a representative value based on the correlation coefficients calculated by the combination calculator.
3. The sleep apnea syndrome diagnosing device according to claim 2, wherein the combination calculator calculates correlation coefficients on all the combinations of the cycles set by shifting within the reference data moving period by the second predetermined period each time and

the cycles set by shifting within the comparison data moving period by the third predetermined period each time.

4. The sleep apnea syndrome diagnosing device according to claim 3, wherein the representative value extractor extracts a maximum value from values of the correlation coefficients calculated by the combination calculator as the representative value.

5. The sleep apnea syndrome diagnosing device according to claim 4, wherein the second predetermined period and the third predetermined period coincide with a data sampling period of the snoring sound held in the snoring sound holder.

6. The sleep apnea syndrome diagnosing device according to claim 2, wherein the output section outputs the correlation coefficients calculated by the combination calculator as a graph.

7. A sleep apnea syndrome diagnosing method, comprising the steps of:

- collecting snoring sound and storing the collected snoring sound in a snoring sound holder;

- dividing a time axis of the snoring sound held in the snoring sound holder into plural cycles;

- sequentially calculating a correlation coefficient between the snoring sound of one cycle and the snoring sound of a cycle next to the one cycle; and

- outputting the calculated correlation coefficient.

8. The sleep apnea syndrome diagnosing method according to claim 7, wherein the step of calculating the correlation coefficient comprises the steps of:

- setting a reference data moving period having a first length longer than a length of the cycle on the time axis of the snoring sound;

- setting a comparison data moving period having a second length longer than the length of the cycle on the time axis of the snoring sound, the comparison data moving period being shifted from the reference data

moving period by a first predetermined period;

calculating correlation coefficients on respective combinations of cycles set by shifting within the reference data moving period by a second predetermined period each time and cycles set by shifting within the comparison data moving period by a third predetermined period each time; and

extracting a representative value based on the calculated correlation coefficients.

9. The sleep apnea syndrome diagnosing method according to claim 8, wherein in the step of calculating the correlation coefficients on the respective combinations, the correlation coefficients are calculated on all the combinations of the cycles set by shifting within the reference data moving period by the second predetermined period each time and the cycles set by shifting within the comparison data moving period by the third predetermined period each time.

10. The sleep apnea syndrome diagnosing method according to claim 9, wherein in the step of extracting the representative value, a maximum value is extracted from values of the calculated correlation coefficients as the representative value.

11. The sleep apnea syndrome diagnosing method according to claim 10, wherein the second predetermined period and the third predetermined period coincide with a data sampling period of the snoring sound held in the snoring sound holder.

12. The sleep apnea syndrome diagnosing method according to claim 7, wherein in the step of outputting the calculated correlation coefficient, the calculated correlation coefficients are outputted as a graph.

13. A computer program product including a medium recording a program for diagnosing sleep apnea syndrome, the program being operable to execute the steps of:

collecting snoring sound and storing the collected snoring sound

in a snoring sound holder;

dividing a time axis of the snoring sound held in the snoring sound holder into plural cycles;

sequentially calculating a correlation coefficient between the snoring sound of one cycle and the snoring sound of a cycle next to the one cycle; and

outputting the calculated correlation coefficient.

14. A signal analyzer, comprising:

a signal data holder which holds signal data with irregular periodicity;

a correlation coefficient calculator which divides a time axis of the signal data held in the signal data holder into plural cycles and sequentially calculating a correlation coefficient between the signal data of one cycle and the signal data of a cycle next to the one cycle; and

an output section which outputs the correlation coefficient calculated by the correlation coefficient calculator.

15. A signal analyzing method, comprising the steps of:

collecting signal data with irregular periodicity and holding the signal data in a signal data holder;

dividing a time axis of the signal data held in the signal data holder into plural cycles;

sequentially calculating a correlation coefficient between the signal data of one cycle and the signal data of a cycle next to the one cycle; and

outputting the calculated correlation coefficient.